THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KRISHNA G. SACHDEV,
BENEDIKT M. J. KELLNER,
KATHLEEN M. McGUIRE
and PETER J. SORCE

Appeal No. 1996-0203
Application 08/006,414[1]

ON BRIEF

Before DOWNEY, METZ, and JOHN D. SMITH, **Administrative Patent Judges**.

METZ, **Administrative Patent Judge**.

DECISION ON APPEAL

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[1] Application for patent filed January 21, 1993. Said application is a division of U.S. Application Serial Number 07/784,281, filed on October 29, 1991, and now U.S. Patent Number 5,231,751, issued on August 3, 1993.

This is an appeal under 35 U.S.C. § 134 from the examiner's refusal to allow claims 1 through 12, 29 and 30, all the claims remaining in the application.

THE INVENTION

The claimed invention is directed to a structure which is a multilayer thin film interconnect known as a compensator. The compensators are said to achieve improved electrical performance and dimensional stability compared to prior art compensators.

Claim 1 is believed to be adequately representative of the appealed subject matter and is reproduced below for a more facile understanding of appellants' invention.

> 1. A compensator interconnect structure used in forming a multilayer thin-film structure, said compensator comprising at least one metal layer, said metal layer having at least one opening, at least one layer of at least one polymer conformally coating said metal layer and lining said at least one opening, and wherein said opening has at least one via metal stud.[2]

Additionally, to aid in understanding the claimed subject

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[2] Claim 1 reproduced above does not include the term "transferrable" in either the first or third lines of claim 1 as reproduced in appellants' brief. We shall discuss this issue below.

matter, we have attached Figures 14 and 15 of appellants' drawings to this decision, said Figures urged by appellants at, ***inter alia***, page 12 of their brief to represent the subject matter of claim 1.

THE REFERENCES

The references of record which are being relied on as evidence of obviousness are:

DiStefano et al. (DiStefano)	4,933,045	June 12, 1990
Heller et al. (Heller)	5,108,819	Apr. 28, 1992
Bakhru et al. (Bakhru)	5,196,251	Mar. 23, 1993
Ahmad et al. (Ahmad)	5,209,817	May 11, 1993
Kumar	5,244,538	Sept. 14, 1993

King et al. (King), "Screening Masks and Method of Fabrication",
IBM Technical Disclosure Bulletin, Volume 20, No. 2, (July 1977).

BACKGROUND

In their brief, appellants raise an issue that is not an appealable matter but a petitionable one. Specifically, appellants urge that we should direct the examiner to enter the amendment filed after final rejection (Paper Number 8), which amendment the examiner refused to enter on various grounds (see Paper Numbers 9 and 11). However, as correctly noted by the examiner, the decision by an examiner to enter or not enter an amendment after final rejection is within the

discretion of the examiner. Whether or not the examiner abused his discretion is a petitionable matter under 37 C.F.R. § 1.181 not an appealable matter under 35 U.S.C. § 134. Accordingly, the status of the amendment after final rejection remains as set forth by the

examiner in the advisory actions (Paper Numbers 9 and 11) and the language of claim 1 remains as set forth in the amendment of February 3, 1994 (Paper Number 6).

THE REJECTIONS

Claims 1, 5 through 7, 10 and 11 stand rejected under 35 U.S.C. § 103 as being unpatentable from DiStefano. Claims 3 and 4 stand rejected under 35 U.S.C. § 103 as being unpatentable from DiStefano considered with Kumar. Claims 2 and 8 stand rejected under 35 U.S.C. § 103 as being unpatentable from DiStefano considered with Heller. Claim 9 stands rejected under 35 U.S.C.
§ 103 from DiStefano considered with Heller and Bakhru. Claim 12 is rejected under 35 U.S.C. § 103 as being unpatentable form DiStefano considered with King. Claims 29 and 30 are rejected under 35 U.S.C. § 103 as being unpatentable from DiStefano considered with Ahmad.

We shall affirm the rejections of claims 1, 2, and 5 through 11 under 35 U.S.C. § 103. We shall reverse the rejections of claims 3, 4, 12, 29 and 30 under 35 U.S.C. § 103.

OPINION

Claim 1 is directed to a "structure" defined by the elements recited in claim 1. The elements "comprising" the structure are: (1) at least one metal layer having at least one opening (see **11** in Figure 14); (2) at least one layer of at least one polymer which coats and conforms to the metal layer and which lines the at least one opening through said metal layer (see **25** in Figure 14); and, (3) wherein the opening through the metal layer has at least one via metal stud (see **41** in Figure 14).

We are somewhat confused by the scope of claim 1 because appellants urge that the structure claimed therein is represented by Figures 14 and 15 of the drawings. However, while claim 1 requires at least one hole through the metal layer, it also requires that the hole or opening is filled with metal to yield a "via stud" as in **41** in Figure 14. We observe that Figures 14 and 15 are solid structures without holes or openings. Nevertheless, we are not free to ignore any claim limitation. Thus, we shall interpret claim 1 as requiring both at least one hole through the metal layer and

wherein at least one hole is filled with metal to form a "via stud".

DiStefano describes a multilayer, laminated interconnect board. In Figure 4 there is described at least one metal ground layer **17** having via holes therethrough. The via holes also go through a polyimide layer **14**. The polyimide may be Kapton and conforms to the metal ground layer. As a polyimide dielectric layer, layer **14** is an insulator. The holes are subsequently filled with metal (column 3, lines 59 through 64) to connect the conductors **16** to the vias. Thus, DiStefano describes, in the sense of 35 U.S.C. § 102(b), the subject matter claimed by appellants in claim 1.

In reaching the above conclusion, we have not overlooked appellants' arguments found on pages 12 through 14 of the brief. However, most of appellants' arguments either concern limitations not found in claim 1 or concern features found in the art but not excluded by the scope of claim 1. Specifically, because claim 1 does not recite that it is directed to a transferable interconnect structure, the failure

of DiStefano to disclose a transferable interconnect structure does not diminish the weight of its disclosure. Moreover, DiStefano does describe an interconnect board. Even more significantly, we do not find that the preambular description of the structure in claim 1 describes a limitation of the claimed structure but only describes an intended end-use for the structure.

Further, none of claims 1, 5 through 7, 10 or 11 recites or requires "a metal seed layer" or "an adhesion layer". Further, because claim 1 is a "comprising" claim, the adhesive layer, the first organic dielectric layer and the organic dielectric layer of DiStefano are not excluded from the structure claimed in claim 1. Claim 2 further limits the "polymer" from claim 1 to a "high-temperature stable insulator". However, appellants do not define the meaning of the relative term "high temperature" and DiStefano does describe polyimide insulators. For all these reasons, and because anticipation has been held to be the epitome of obviousness, we affirm the rejection of claims 1, 2 and 5 through 8, 10 and 11 under 35 U.S.C. § 103.

Claim 9 requires that the polyimide of claim 8 is a particular polyimide, **BPDA-PDA**. Bakhru clearly discloses **BPDA-PDA** is a well-known polyimide coating material. We agree with the examiner's conclusion that, in light of DiStefano's disclosure of polyimides as useful dielectric layers, it would have been within the ordinary skill of the routineer to select a particular, commercially available polyimide for use in DiStefano's interconnect board.

Claim 3 requires that there is a metal adhesion layer between the metal layer and the polymer layer. Claim 4 requires that the metal adhesion layer is selected from a particular group of metals. We agree with appellants that neither DiStefano nor DiStefano considered with Kumar disclose or suggest a metal adhesion layer as required by claims 3 and 4. Because the examiner has not made out a ***prima facie*** case of obviousness with respect to the subject matter in claims 3 and 4, we reverse the rejection of claims 3 and 4 under 35 U.S.C. § 103.

Claim 12 requires that the metal layer is etched to provide the metal layer with a "knife-edge" configuration. We agree with appellants that neither DiStefano nor King teaches

or suggests etching the metal layer to form a "knife-edge" configuration thereon. Accordingly, the rejection of claim 12 under 35 U.S.C.
§ 103 is reversed.

Claims 29 and 30 respectively recite that the opening has a conformal coating of a metal seed layer and the metal seed layer is selected from a particular group of metals. We agree with appellants that neither DiStefano alone nor DiStefano considered with Ahmad teaches or suggests a conformal coating on the opening in the metal layer of a metal seed layer let alone a metal seed layer selected from particular metals. Accordingly, we reverse the examiner's rejection of claims 29 and 30 under 35 U.S.C.
§ 103.

SUMMARY

We have affirmed the rejections of claims 1, 2 and 5 through 11 under 35 U.S.C. § 103. We have reversed the examiner's rejection of claims 3, 4, 12, 29 and 30 under 35 U.S.C. § 103.

The decision of the examiner is **affirmed-in-part**.

No period for taking subsequent action concerning this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART.

MARY F. DOWNEY Administrative Patent Judge	)
ANDREW H. METZ Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
JOHN D. SMITH Administrative Patent Judge	)

AHM/dal

Appeal No. 1996-0203
Application No. 08/006,414

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